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Accordingly, a new and improved detachable display carrier and electronic display control for use with a portable electronic device, such as a portable communications device, is disclosed. The new and improved detachable display carrier and electronic display control is designed for use in small handheld electronic devices and is situated so as to allow the user to view a plurality of additional displays on the electronic device. Thus, a display carrier, housing a plurality of displays, electronically controlled dependent upon the supplying power source is disclosed which is small and easy to operate so that it can be detachably incorporated into very small electronic equipment, such as radios, cellular and cordless telephones, pagers, data banks and the like.

While we have shown and described specific embodiments of the present invention, further modifications and improvements will occur to those skilled in the art. We desire it to be understood, therefore, that this invention is not limited to the particular forms shown and we intend in the appended claims to cover all modifications that do not depart from the spirit and scope of this invention.

What is claimed is:

1. A portable electronic device with removable display carrier comprising:

- a handheld electronic device;
 - a power source interfaced with the handheld electronic device providing operating power to the handheld electronic device for complete stand-alone operation of the handheld electronic device; and
 - a detachable accessory for the handheld electronic device including
 - a detachable display carrier mounted on the handheld electronic device and including a plurality of display apparatus for viewing of displayed images by an operator, the plurality of display apparatus including display electronics,
 - an electronic display control mounted in the display carrier and in electrical interface with the display electronics and the portable electronic device for producing in combination with a display driver a plurality of responsive displays, and
 - a data communication interface between the display carrier and the handheld electronic device for providing display data to the display electronics from the handheld electronic device,
- whereby, when the display carrier is attached to the handheld electronic device the handheld electronic device is provided with at least one display of data from the handheld electronic device.

2. A portable electronic device with removable display carrier as claimed in claim 1 wherein the power source is interchangeable between a portable battery power source and a hardwired power source.

3. A portable electronic device with removable display carrier as claimed in claim 1 wherein the plurality of display apparatus include at least one of a virtual image display apparatus for providing a virtual image of a complete frame of alphagraphics in the virtual image display apparatus and a direct view display apparatus for providing a direct view image in the direct view display apparatus.

4. A portable electronic device with removable display carrier as claimed in claim 1 wherein the electrical interface with the display electronics includes a wireless connection.

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5. A portable electronic device with removable display carrier as claimed in claim 4 wherein the wireless connection includes an infra red optical link.

6. A portable electronic device with removable display carrier as claimed in claim 4 wherein the wireless connection includes a radio frequency link.

7. A portable electronic device with removable display carrier as claimed in claim 1 wherein the electrical interface with the display electronics includes an electrical connector interface.

8. A portable electronic device with removable display carrier as claimed in claim 1 wherein the electrical interface with display electronics includes a solid form factor design including contact areas located on the display apparatus and the power source.

9. A portable electronic device with removable display carrier as claimed in claim 1 wherein the electronic display control includes circuits for controlling the plurality of display apparatus in response to the power source.

10. A portable electronic device with removable display carrier comprising:

- a handheld communication receiver;
 - a power source interfaced with the handheld communication receiver for supplying power to the handheld communication receiver for complete stand-alone operation of the handheld communication receiver; and
 - a detachable accessory for the handheld communication receiver including
 - a display carrier including a plurality of display apparatus, electrically connected to and detachably mounted on the portable electronic device, each display apparatus having a viewing aperture,
 - a display management chip interfaced with the power source of the portable electronic device and the plurality of display apparatus, the display management chip characterized as controlling the display of the plurality of display apparatus, and
 - a data communication interface between the display carrier and the handheld communication receiver for data transmission between the handheld communication receiver and the plurality of display apparatus of the display carrier,
- whereby, when the display carrier is attached to the handheld communication receiver the handheld communication receiver is provided with at least one display of data from the handheld communication receiver.

11. A portable electronic device with removable display carrier as claimed in claim 10 wherein the display management chip provides for simultaneous operation of the plurality of display apparatus when a hardwired power source is supplying power to the portable electronic device.

12. A portable electronic device with removable display as claimed in claim 10 wherein the display management chip provides for select operation of one of the plurality of display apparatus when a battery power source is supplying power to the portable electronic device.